



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/628,001

07/25/2003

Matthew F. Davis

AMAT/7938/ETCH/SILICON/JB

3943

44182

7590

02/10/2006

PATTERSON & SHERIDAN, LLP

APPLIED MATERIALS INC

595 SHREWSBURY AVE

SUITE 100

SHREWSBURY, NJ 07702

EXAMINER

STEVENSON, ANDRE C

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/628,001	Applicant(s) DAVIS ET AL. (AM)	
	Examiner Andre' C. Stevenson	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 23-26, 56-59 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-22 and 39-55 is/are allowed.
- 6) ☒ Claim(s) 1-8, 27-38, 60 and 61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Final Rejection

Applicant's Arguments: Reitman does not teach or suggest performing a process perturbation operation in the process chamber.

Examiner's Answer: The Examiner notes that the definition of perturbation, as supplied by "The Authoritative Dictionary of IEEE Standards Terms, is," **Perturbation Technique – An approximate analytical method the accuracy of which is based on the smallness of one or more characteristics of the medium or interface**". The Examiner directs the applicant to column 5, lines 35 – 55; Reitman explains that the signals detect subtle changes that indicate endpoint to a process or subsystem failure. The Examiner takes the position that these subtle changes represent small changes (perturbations) in the conditions of the process. Also, Reitman in column #5, lines 15-28, explains that the reference numbers listed represent the start and finish of three separate etching steps of the process, where the dynamic flow of the monitored variables, represent the etching process. The Examiner takes the position that these changes in the process also represent a perturbation in the process. For these reasons, the Examiner takes the position that the rejection is proper.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

Art Unit: 2812

do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-8, 27-38, 60 and 61 are rejected under 35 U.S.C. 102(e) as being anticipated by Reitman (U.S. Pat. No. 6,420,194, Pat. Date 07/16/02, File 07/14/00).

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: The prior art fails to show, either alone or in combination, performing a second multivariate analysis on the collected OES and RF data from the chamber under study to produce second multivariate analysis results; and comparing the second multivariate analysis results from the chamber under study to the first multivariate analysis results from the reference chamber.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 9 through 22 and 39 through 55 are allowed.

Claim #9

- Performing a second multivariate analysis on the collected OES and RF data from the chamber under study to produce second multivariate analysis results;

Art Unit: 2812

and comparing the second multivariate analysis results from the chamber under study to the first multivariate analysis results from the reference chamber.

Claim #39

- Performing a multivariate analysis on the revised data of plasma attributes of the process chamber under study to produce second multivariate analysis results; comparing the second multivariate analysis results from the chamber under study to the first multivariate analysis results from the reference chamber.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2812

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Chang et al. (U.S. Pub. No. 2005/0019964, Moran (U.S. Pub. No. 5,986,747), Kornblit et al. (U.S. Pub. No. 6,021,215).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272 1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

(703) 872-9306

Andre' Stevenson

01/19/06


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER